

Astronomy 264 Guide to Lab Spring 2007

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Lab Text: Introductory Astronomy Laboratory Manual by Ian Shipsey, Jennifer Coy, and Ben MacCall, McGraw-Hill 6th Edition

Lab homepage: www.physics.purdue.edu/academic_programs/courses/astr264/

Welcome

Welcome to Astronomy 264 Lab!

The night sky is an astonishingly beautiful sight, from which primitive man derived spiritual inspiration, while our more advanced civilization derives a scientific understanding of the universe. Today, astronomy generates perhaps the most public interest of all the sciences. Part of this is no doubt due to its accessible character embodied in the stunning pictures from the Hubble Space Telescope. Another part of the appeal of astronomy remains undeniably spiritual. Almost everyone would like to know how the universe came in to being, and if other advanced life forms exist in the Universe.

The appeal of astronomy is reflected in the large enrollment offered in introductory astronomy courses offered at most universities. The purpose of these courses is to provide the student with a sufficiently broad and deep background in astronomy and to, subsequently, critically follow the new developments in the field for the foreseeable future.

Astronomy is an observational science. Progress in our understanding of the universe is based upon: (a) the development and application of advanced technology to observe the universe and (b) interpretation of astronomical

observations in the context of other sciences such as physics, chemistry, earth science etc.

The lab

No introductory astronomy course would be complete without an astronomy lab. Surprisingly, many major research universities do not offer a lab as part of their introductory astronomy courses. Therefore regard the lab as a special opportunity.

The primary aims of lab are to reinforce the concepts learned in lecture and to give you a greater appreciation of the night sky. We achieve this through a variety of complementary activities. These include indoor activities such as; building a working telescope, determining the composition of stars using a spectroscope, measuring distance using a laser protractor, building a scale model of the Universe, and determining how old the Universe is. When the weather is good you will have the opportunity to see Saturn, the Moon and many other objects through a telescope. No matter how many spectacular pictures you find on the web, there is nothing like seeing the rings of Saturn first hand. You will also be taught to recognize all the major constellations and to identify the planets. This is a wonderful opportunity to become an expert navigator of the night sky. You will find that this skill, once learned, is never forgotten.

Lab Guidelines

Lab is held every week on the night that you are assigned by the registrar. Lab starts at 8:30 p.m. and ends at 10:20 p.m.

Please bring your lab manual to each lab. Also please bring a pen and pencil, a metric ruler and a scientific calculator. The calculator should be able to calculate the trigonometric relations (sin, cos, etc.), logarithms and exponentials, and scientific notation.

Unlike most other courses you have taken, astronomy lab is weather dependent. In the fall it is clear 30-50% of the time, while in the spring it is clear 15-30% of the time. Each day, shortly before 4 p.m., the TA's use weather satellite information to determine if it will be mostly clear from 8:30 to 10:20 p.m. that night. Predictions are not 100% accurate but most of the time we are able to make the correct call. We will try to go outside three times a semester. There are two observing locations: the Cumberland Observatory in West Lafayette and a dark site 10 miles outside town. We travel to both locations by bus. Make sure to dress warmly if the weather is cool, since you will be standing outside for up to 1 1/2 hours. Indiana nights can be very cold. When the weather is not good lab will be held in one of many locations on campus.

To determine where your group will be meeting on a given night you may check the sign posted on the outside of Physics 223 or 149 after 4:00 p.m. or check the announcements section of your CHIP grade book. Indoor locations include six classrooms in the Physics building, and other locations on campus. If we are going observing you will meet the busses in front (entrance along Northwestern) of the Physics building. The exact location where you should meet your TA each evening will be posted on the sign and on the CHIP announcements.

Please make sure to arrive at lab before 8:30 p.m. ! The busses leave promptly at 8:30. If you miss the bus, you will receive a zero for that lab. Note: The Cumberland Observatory is the property of the West Lafayette Community School Corporation. Private parking is not permitted at night at the observatory. Therefore you are not to drive your own car to the Cumberland Observatory. The dark site is administered by Tippecanoe County Parks. We have entered into a special arrangement with the park to use the dark site. The agreement expressly forbids private vehicles entering the park at night. Therefore, driving to the dark site in your own car is also not permitted.

Indoor and outdoor lab activities involve the worksheets in the lab manual. The worksheets are to be completed during the lab and removed from the manual and handed to your TA for grading. Each week your TA will inform you what the next planned indoor activity will be. This will allow you to read ahead and prepare for lab.

Each week your TA will spend a few minutes discussing one of the constellation sheets found at the front of the manual. When you are at the dark site or observatory you will have the opportunity to see these constellations for yourself. At the end of each lab there will be a short application question on that lab. It will be open book and open note, but you will not be allowed to talk with any other students. In addition, there will be a midterm quiz over previously completed labs, and a final quiz at the end of the semester. Ask your TA for the dates. The two quizzes will be based on material you have met in lab. This includes the indoor labs, the observing sessions and the constellation sheets. To help you prepare for each quiz, your TA will circulate a review sheet the week before the quiz is to be held.

Students Who Have Taken ASTR263 or 264 Previously

If you have taken either ASTR263 or ASTR264 previously, you have the option of using your previous score in place of repeating the lab. If you choose this option, you still need to attend the first class and meet with your TA. You need to know what semester you took the course and who your TA was. If you do not talk with your TA at the beginning of the semester, we will not use your previous score,

and you will receive a zero for your lab grade, which means you will fail the course. Make sure to let your TA know you want to use your previous score.

Lab Grading Procedure

You **must pass the lab in order to pass the course**. To pass the lab you must earn 50 of the 100 possible points. The point break down is as follows:

Slideshow	2.5 points
Math review	2.5 points
Labs	30 points (approx 2.5 points per week)
Application Question	30 points (approx 2.5 points per week)
One dropped lab & App Question	-5 points
Midterm Quiz	20 points
Final Quiz	20 points
Total Points Possible	100 points

The way to pass lab is to attend and participate. In recent semesters more than 95% of students passed the lab. There will be **no makeup labs**. If you have a valid excuse for an absence (sick with doctor's note, etc.) you may obtain an Excused Absence.

To get an excused absence you must pick up an Excuse Sheet from Physics 144. We will not accept doctor's notes, notes from professors, etc, without an accompanying excuse sheet from 144. The sheet must be turned in to your TA within **ONE week** of the date of the absence. In the event that this is impossible, owing to a very serious illness for example, you should have somebody notify the university and your TA. Labs and application questions missed due to excused absences will be entered into the grade book with a score of EX. At the end of the semester, the EX will be replaced with the average score of labs/application questions.

Examples of absences that **cannot be excused** include sickness without a doctor's note, fraternity and sorority meetings, band practice, or any other non-academic meeting. Any unexcused absence will receive a zero. In determining your final grade for the laboratory, the lowest lab grade will be dropped. If you miss the midterm or final quiz because of an excused absence, you must make the quiz up within a week.

Since the grading level may slightly vary between TAs, **it is possible that the final lab grade will be normalized.**

If you are having difficulty with the lab or lecture concepts, please talk with a TA. You are allowed to go to talk with any of the Astronomy TA's during their

office hours or by appointment. The office hours for all of the TA's will be posted on the Astronomy website. If you have an administrative problem with lab please go to your TA's office hours or contact your TA by e-mail phone, or by going to Physics room 144 and leaving a note with the secretary to put into the TA's mailbox. If you feel that a lab or quiz has been improperly graded, you need to talk with your TA within one week of getting the graded lab or quiz back.

Grades for the course are stored in CHIP, which stands for computerized homework in physics. You do NOT have homework for the class, but we do utilize CHIP as a grade book. Follow the links from www.physics.purdue.edu to access your chip account. Initial user name and password are given below.

CHIP User name and password

To log in use your username and password as described here. Your username is made up of the first four letters of your last name (all lower case) followed by last four digits of your new 10 digit Purdue ID Number (PUID).

Example: Last name: *Charles* and PUID: *00153-25432*, in this case the username will be "*char5432*". In some special cases when the last name has fewer than four characters, the additional characters will come from the first name, and if necessary, from the middle name. Some examples are given in the table below:

Name know by registrar	PUID	Login name	Comments
Charles, James Ryan	00153-25432	char5432	Nothing unusual
Oh, Robert	00078-82307	ohro2307	2-letter last name
O, Jo Marie	00363-23427	ojom3427	1-letter last name, 2-letter Middle name
AI-Ama, Ita Ota	00322-46429	ai-a6429	Hyphenated last name
Le Ci La, James Doug	00684-56753	leci6753	Blank spaces in last name
Tu(Chien), Stephanie	00825-96129	tu(c6129	Parentheses in last name
O'Sullivan, David	00160-91124	o'su1124	Apostrophe in last name

For each course (Lecture/Recitation and Lab, if any, are contained in a *single* CHIP course), a default password has initially been assigned to each student. Your initial password for this semester is "*xxxmn*" where *mn* is the 6th and 7th digits of your PUID and *xxx* represents your course number (such as 149, 152, 214, 218, etc., for courses like 290D and 290E *xxx* stands for 290). For the PUID in above example (00153- 25432) and course Physics 152, the initial password will be 15225. Once you log in for the first time you should change your initial password to something more private immediately. Once in student grade book, click on **Change My Password** to change your password. Please make sure to use more than 4 letters and numbers, preferably mixing letters, numbers and cases. **IMPORTANT: Please note that CHIP is completely independent of the ITaP system and your ITaP carrier account username and password will not work with CHIP.**

You have every right to expect your graded work to be returned to you in a prompt fashion. If you have not received your graded work for a given lab within two weeks of that lab, please notify the lab coordinator aide, Andrew Irrgang. You may also speak with the lab coordinator aide about lab in general or any problem you have encountered in lab during this semester. The best way to reach Andrew is by E-mail.

Enjoy Lab!